



SPECIFICATION - TWIN SEAPLANE FLOATS

This specification defines the minimum airworthiness requirements for twin seaplane floats suitable for use on commercial airplanes.

1. APPLICABLE SPECIFICATIONS

- 1.1 The applicable sections of the latest issue and amendment of the following document are made a part of this specification as hereinafter noted.

1.1.1 Air Force-Navy-Civil Design Criteria
ANC - 5 Strength of Metal Aircraft Elements

2. TYPES

- 2.1 This specification provides design criteria for twin seaplane floats for use on civil airplanes.

3. MATERIAL AND WORKMANSHIP

All materials used in the structure shall be of a quality which experience or tests have demonstrated to be suitable and dependable for use in aircraft floats and shall conform to specifications which will insure their having the strength and other properties assumed in the design. All workmanship shall be consistent with high-grade aircraft float manufacturing practice.

- 3.1 Fabrication Methods: The methods of fabrication employed in the construction of the float structure shall be such as to produce consistently sound structures. When a fabrication process requires close control to attain this objective, the process shall be one for which the suitability and dependability have been established on the basis of experience or tests.
- 3.2 Standard Fastenings: All bolts, pins, screws, and rivets used in the structure shall be of a type the suitability and dependability of which have been demonstrated by experience or tests. The use of a suitable and dependable locking device or method is required for all such bolts, pins, and screws. Self-locking nuts shall not be used on bolts subject to rotation.

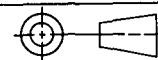
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- 3.3 Protection: All members of the structure shall be suitably protected against deterioration or loss of strength in service due to weathering, corrosion, abrasion, or other causes. Special precautions shall be taken against corrosion from salt water, particularly where parts made from different metals are in close proximity. Adequate provisions for ventilation and drainage of all parts of the structure shall be made.
- 3.4 Inspection Provisions: Adequate means shall be provided to permit the close examination of such parts of the float as require periodic inspection, adjustments for proper alignment and functioning, and lubrication of moving parts.
- 3.5 Identification: Seaplane floats shall be suitably placarded with the following information:

Manufacturer's Name
Float Model
Maximum Seaplane Gross Weight
Maximum Stalling Speed

For Limiting Installation Geometry,
See Manual No. _____
Serial No.
NAS Spec. No.

4. DETAIL REQUIREMENTS

- 4.1 Buoyancy: Twin seaplane floats shall have a buoyancy of 80% in excess of that required to support the maximum weight of the airplane in fresh water.

- 4.1.1 Compartmentation: Seaplane floats for use on airplanes of 2500 pounds or more maximum weight shall contain at least five watertight compartments. Floats for use on aircraft of less than 2500 pounds maximum weight shall contain at least four such compartments. Watertight compartments shall have approximately equal volumes.

4.2 Strength:

- 4.2.1 Material Strength Properties: The strength properties of the materials used shall be based on a sufficient number of tests of material to establish design values on a statistical basis. The design values shall be so chosen that the probability of any structure being under-strength because of material variations is extremely remote. The values contained in ANC-5 shall be used unless shown to be inapplicable in a particular case. The structure shall be designed, in so far as practicable, to avoid points of stress concentration where variable stresses above the fatigue limit are likely to occur

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4.2.1 in normal service.

① 4.2.2 Loads: Strength requirements are specified in terms of limit and ultimate loads. Limit loads are the maximum loads anticipated in service. Ultimate loads are equal to the limit loads multiplied by the factor of safety. Unless otherwise described, loads specified are limit loads. All such loads shall be distributed in a manner conservatively approximating or closely representing actual conditions. If deflections under load would change significantly the distribution of external or internal loads, such redistribution shall be taken into account.

4.2.3 Factor of Safety: The factor of safety shall be 1.5 unless otherwise specified.

4.2.3.1 Special Factors: Where there may be uncertainty concerning the actual strength of particular parts of the structure, or where the strength is likely to deteriorate in service prior to normal replacement, increased factors of safety shall be provided to insure that the strength and reliability of such parts is not less than the rest of the structure.

4.2.3.2 Casting Factors:

- ① (a) If visual inspection only is to be employed, the variability factor shall be 2.0.
- (b) The variability factor may be reduced to 1.25 for ultimate loads and 1.15 for limit loads if at least three sample castings are tested to show compliance with these factors, and if all sample and production castings have been determined to be acceptable upon completion of a visual and radiographical inspection.

① 4.2.3.3 Bearing Factors: The factor of safety in bearing at bolted or pinned joints shall be in accordance with those bearing factors contained in ANC-5.

① 4.2.3.4 Fitting Factor: Fittings are defined as parts such as end terminals used to join one structural member to another. A multiplying factor of safety of at least 1.15 shall be used in the analysis of all fittings the strength of which is not proved by limit and ultimate load tests in which the actual stress conditions are simulated in the fitting and the surrounding structure. This factor applies to all portions of the fitting, the means of attachment, and bearing

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